PROJECT NUMBER: 1503
PROJECT TITLE: Modified Smoking Materials
PROJECT LEADER: J. G. Nepomuceno
PERIOD COVERED: June, 1988

I. FOAMED FILLER BINDER

A. **Objective**: Develop process for applying a subjectively acceptable binder to the tobacco filler during making to improve cigarette quality.

B. **Results**: The experimental runs at the Semiworks have been completed with the objective of evaluating the full potential of maltodextrins as a binder system. This binder system consisting of 48% maltodextrin and 5% licorice was added to the cigarette at a rate of 0.8% solids and was evaluated in terms of cigarette firmness and loose ends improvements, and subjective acceptability. Data from these tests have been received and evaluated. The data showed no significant improvement in the pack firmnesses of the foam bound rod. Data analysis shows that the firmness improvement resulting from the presence of the binder is negated by the effects of the OV adjustment to the filler. This OV adjustment is necessary in order to compensate for the OV increase that results from the binder addition. In addition, the Flavor Development panels have found these foam bound rod models to be significantly different from the control. Based on these results, it is recommended that this technology be put on the shelf until such time that a more effective means of overcoming the negative contributions of the moisture increase becomes available and a more subjectively acceptable binder is found.

C. **Plans**: Prepare and issue the final report on the findings, conclusions and recommendations for this program.

II. LOW DENSITY ROD (BINDER APPLICATION)

A. **Objective**: Produce pre-coated tobacco via the batch process to support the current product and process development efforts for the low density rod program. Develop a method of pre-applying binders to the tobacco in a manner that can be easily scaled up to commercial scales.

B. **Results**: Process development on the continuous coating reel continued. Successful coating operations were completed with the blanked-off sections under the spray zones removed. This allowed addition of a third nozzle. Operating conditions which allowed the application of 2.5% pectin (total add-on) without build-up on the walls or formation of tobacco/pectin clumps were established for this three-nozzle configuration. However, these conditions resulted in unacceptably low product exit OV's. When the drying rate was reduced to allow production with exit OV's at 13.5%, clumping under the nozzles began which was most likely due to the increased moisture level under each spray nozzle. Additional

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nozzles are currently being added to the configuration in order to address this problem. Development Engineering is currently working on the design of a spray header which would allow us to easily adjust the number and position of the nozzles in the cylinder.

C. **Plans**: Evaluate performance of the coating reel with the additional nozzles in the system to produce filler for evaluation on the low density rod maker.

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